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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,002	12/11/2001	Juergen Michel	112740-281	7178

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EXAMINER

PEREZ, ANGELICA

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/914,002

Applicant(s)

MICHEL ET AL.

Examiner

Angelica M. Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 15-17, 21 and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Ostberg (Ostberg et al., US Patent No.: 6,504,830B1).

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ostberg.

Regarding claims 15 and 27, Ostberg teaches of a method and apparatus for synchronization of a receiver with a transmission signal in an information transmission system (column 1, lines 15-18 and column 6, lines 49-62), the method comprising the steps of: providing at least two physical channels

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operable in parallel for receiving and processing the transmission signal (column 3, lines 34-45; e.g., the primary and secondary channels; also, column 1, lines 63-65; where the correlators perform in parallel); performing a correlation evaluation of the transmission signal at each physical channel (column 7, lines 56-59; e.g., "the symbol of the first slot can be multiplied by the first element of the sequence...symbol in the second slot..."); and linking the correlation evaluation associated with each of the physical channels for indicating time synchronization of the transmission signal with the receiver (column 7, lines 60-62; e.g., "find the frame synchronization based on sixteen consecutive correlations").

Regarding claims 16 and 28, Ostberg teaches all the limitations of claims 15 and 27, respectively. Ostberg further teaches where the information transmission system comprises a mobile radio system (figure 1A and column 2, lines 23-25; where a "BS" and "mobile station" are part of a "mobile radio system").

Regarding claim 17, Ostberg teaches all the limitations of claim 15. Ostberg further teaches where at least one of the physical channels used for time synchronization is associated with a purpose other than time synchronization in accordance with a transmission protocol in connection with the information transmission system (column 1, lines 16-19; where the other purpose is "sector identification").

Regarding claim 21, Ostberg teaches all the limitations of claim 17. Ostberg further teaches where the at least one physical channel comprises a

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secondary synchronization channel that includes known code words formed by modulation with Hadamard sequences such that the correlation evaluation of the secondary synchronization channel is performed via fast Hadamard transformation (column 3, lines 46-49; where the "Gold Code, extended Gold sequence" correspond to the "Hadamard sequences" where correlation evaluations are performed utilizing fast Hadamard transformation).

Regarding claim 29, Ostberg teaches all the limitations of claim 27.

Ostberg further teaches where the physical channel includes a primary synchronization and secondary synchronization channel for synchronization to a higher-level frame structure and/or for identification of parameters including a scrambling code group including one or more differently known code words (column 5, lines 32-343; e.g., "...to identify a Long Code and for slot synchronization").

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 18-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostberg in view of Petch (Petch et al.; Pub. No.: 2002/0,001,299 A1).

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Regarding claim 18, Ostberg teaches all the limitations of claim 15.

Ostberg does not specifically teach where the at least one physical channel comprises a transmission signal sequence at least a portion of which is known.

In related art concerning methods and apparatus for synchronization in a wireless network, Petch teaches where the at least one physical channel comprises a transmission signal sequence at least a portion of which is known (paragraph 0010; where the preamble is a portion of the transmission signal sequence).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Ostberg's synchronization of a receiver with Petch's known portion in order to synchronize the clock based on the clock control signal, as taught by Petch.

Regarding claim 19, Ostberg teaches all the limitations of claim 17. Petch further teaches where the at least one physical channel comprises a monitoring or data channel in the information transmission system (paragraph 0027, lines 13-16; e.g., "data channel").

Regarding claim 21, Ostberg teaches all the limitations of claim 17. Ostberg further teaches where the at least one physical channel comprises a secondary synchronization channel that includes known code words formed by modulation with Hadamard sequences such that the correlation evaluation of the secondary synchronization channel is performed via fast Hadamard transformation.

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6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ostberg in view of Matsuno (Matsuno, Keishi; US Patent No.: 5,613,211 A).

Regarding claim 20, Ostberg teaches all the limitations of claim 17.

Ostberg does not specifically teach where the at least one physical channel comprises a synchronization channel for higher-level frame structure.

In related art concerning a method of establishing inter-base station synchronization, Matsuno teaches where the at least one physical channel comprises a synchronization channel for higher-level frame structure (column 22, lines 38-46; where "super frames" correspond to "higher-level frame").

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Ostberg's synchronization of a receiver with Matsuno's higher-level frame structure in order to shorten the period of time required for synchronization, as taught by Matsuno.

7. Claims 22-26 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostberg in view of Dent (Dent, Paul W.; US Patent No.: 6,625,200 B1).

Regarding claim 22, Ostberg teaches all the limitations of claim 15.

Ostberg does not specifically teach where the information transmission system comprises a transmission protocol that does not include a fixed relationship between the physical channels such that the correlation evaluations associated with each physical channel are linked by incoherent accumulation.

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In related art concerning a multi-stage synchronization with parallel execution, Dent teaches where the information transmission system comprises a transmission protocol that does not include a fixed relationship between the physical channel such that the correlation evaluations associated with each physical channel are linked by incoherent accumulation (columns 2 and 3, lines 53-67 and 1-9, respectively; e.g., "When non-coherent or magnitude accumulation must take place...drift compensation time").

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Ostberg's synchronization of a receiver with Dent's incoherent accumulations in order to identify a likely candidate timing, as taught by Dent.

Regarding claim 23, Ostberg teaches all the limitations of claim 15. Dent further teaches where the information transmission system comprises a transmission protocol that includes a fixed or defined phase relationship between the physical channels for transmission via a common antenna such that the correlation evaluations associated with each physical channel are linked by coherent accumulation (column 7, lines 51-55; e.g., coherent accumulations").

Regarding claim 24, Ostberg teaches all the limitations of claim 15. Dent further teaches where the correlation evaluations associated with each physical channel are stored (column 10, lines 51-58; e.g., "operated sequentially...same stored data...") and subsequently processed via frame synchronization (column 2, lines 12-16 and 24-30).

Regarding claim 25, Ostberg teaches all the limitations of claim 15. Dent further teaches where time synchronization occurs when a predetermined condition is met that is defined by overshooting or undershooting a threshold value associated with a parameter including signal amplitude or bit error rate which identifies the capability to evaluate the transmission signal when the correlation evaluation is performed (column 11, lines 14-30; "falsely exceed a detected threshold...frequency error...").

Regarding claim 26, Ostberg teaches all the limitations of claim 15. Dent further teaches where the correlation evaluations of the physical channels, prior to linking, are weighted as a function of a parameter including signal amplitude or bit error which identifies the capability to evaluate the transmission signal corresponding to each physical channel (column 4, lines 18-30; e.g., "the frequency error estimate...to compensate the received signal...correlation to be performed").

Regarding claim 30, Ostberg teaches all the limitations of claim 27. Ostberg does not specifically teach where the apparatus further comprises an evaluation unit the is connected to the calculation unit for subsequent processing of the transmission signal, and a maximum detector which is connected to the evaluation unit.

In related art concerning a multi-stage synchronization with parallel execution, Dent further teaches where the apparatus further comprises an evaluation unit the is connected to the calculation unit for subsequent processing of the transmission signal, and a maximum detector which is connected to the

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evaluation unit (column 3, lines 34-55; where “the calculation unit takes care of correlations and accumulations; the evaluation unit makes the comparisons of values; and the detection unit detects the exceeding threshold values corresponding to a maximum detector. Where it is inherent for the units to be connected in order to being able to perform they associated functions).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Ostberg’s synchronization of a receiver with Dent’s incoherent accumulations in order to decrease the synchronization time, as taught by Dent.

Regarding claim 31, Ostberg teaches all the limitations of claim 27. Dent further teaches where the calculation unit performs coherent and incoherent accumulation of output signals derived from the correlation units (column 2, lines 53-63).

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Conclusion


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angelica Perez whose telephone number is 703-305-8724. The examiner can normally be reached on 7:15 a.m. - 3:55 p.m., Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and for After Final communications.

Information regarding Patent Application Information Retrieval (PAIR) system can be found at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600's customer service number is 703-306-0377.


Angelica Perez
(Examiner)

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August 9, 2004